

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the subject application. The Office Action of June 1, 2004 has been received and contents carefully reviewed.

By this Amendment, Applicants amend claim 9, and cancel claims 1-7 without prejudice or disclaimer. In addition, new claims 10-19 have been added. Accordingly, claims 9-19 are currently pending in the present application. Reexamination and reconsideration of the application are respectfully requested.

In the Office Action, the Examiner rejected claims 1-7 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Miyanaga et al. (U.S. Patent No. 5,932,983) in view of Fonash et al. (U.S. Patent No. 5,994,164). Applicants respectfully traverse this rejection.

Claim 9 is allowable over the cited references in that claim 9 recites a combination of elements including, for example, "...wherein the polycrystalline silicon film is formed by crystallizing an amorphous silicon film containing the metal by thermal treatment and applying an electric field." None of the cited references, singly or in combination, teaches or suggests at least this feature of the claimed invention.

In the Office Action on page 3, the Examiner cites Miyanaga et al. as teaching "an electric field" and states, "Miyanaga et al. disclose... and the lamp produces a electric field which applies the electric field onto the silicon film (col. 12, line 43-59)." Applicants respectfully disagree. Applicants respectfully submit that Miyanaga et al., arguendo, may teach a lamp-heating method for crystallization, but it fails to teach or suggest an electric field applied to amorphous silicon for crystallization, which can substantially reduce the annealing time and temperature. See, for example, the specification of the present application (Resubmitted on November 20, 2000), on page 5, lines 14-19. Accordingly, Applicants respectfully submit that claim 9 and claims 10-13, which depend therefrom, are allowable over the cited references.

Claim 14 is allowable over the cited references in that claim 14 recites a combination of elements including, for example, "applying a heat and an electric field to the amorphous silicon layer so as to crystallize the amorphous silicon layer into a polycrystalline silicon layer using a MIC (Metal Induced Crystallization) method, the polycrystalline silicon layer including a

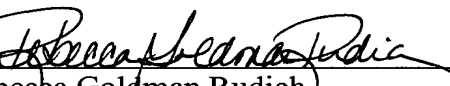
plurality of needle-shaped silicon crystallites, wherein the polycrystalline silicon layer has the metal atoms in the range of 2×10^{17} to 5×10^{19} atoms/cm³ and an electrical conductivity activation energy between 0.52eV and 0.71eV." None of the cited references, singly or in combination, teaches or suggests at least this feature of the claimed invention. Accordingly, Applicants respectfully submit that claim 14, and claims 15-19, which depend therefrom, are allowable over the cited references.

Applicants believe the foregoing amendments place the application in condition for allowance and early, favorable action is respectfully solicited. If the Examiner deems that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at the telephone number (202) 496-7500. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

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Respectfully submitted,

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